

Appl. No. 09/548,734
Amdt. Dated July 13, 2004
Reply to Office Action of May 20, 2004

IN THE CLAIMS

Please amend the claims to be in the form as follows:

1 1. (Currently amended) A method for tracking an object of
2 interest in a video processing system, the method comprising the
3 steps of:

4 generating for particular ones of successive plural
5 measurement intervals an audio locator output from an audio input
6 derived from detecting sound from an object, and a video locator
7 output from a video input derived partly from a camera detecting
8 movement of an object, each indicative of a location of the object
9 of interest;

10 applying a set of confidence level rules to each of the
11 audio locator output and video locator output to determine which
12 one of the audio locator output and the video locator output has a
13 higher confidence level, whereby the one having the highest
14 confidence level will be utilized independently from the other to
15 adjust a setting of the camera during each one of said successive
16 plural measurement ~~intervals,~~ intervals, but if in a measurement
17 interval the confidence levels are equivalent, the video locator
18 output is used if above an established threshold, otherwise the
19 audio locator output is utilized; and

20 adjusting the camera setting utilizing only the selected
21 one of the audio locator output and the video locator output in
22 accordance with the applied set of confidence level rules.

1 2. (Original) The method of claim 1 wherein the object of interest
2 comprises a moving person.

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1 3. (Original) The method of claim 1 wherein the camera is a pan-
2 tilt-zoom (PTZ) camera having adjustable pan, tilt and zoom
3 settings.

1 4. (Original) The method of claim 1 wherein the set of rules
2 includes determining if the audio locator and video locator outputs
3 are sufficiently close for the given measurement interval, and
4 utilizing only the audio locator output to adjust the camera
5 setting if the audio and video locator outputs are not within a
6 specified range of one another for the given measurement interval.

1 5. (Original) The method of claim 4 wherein the set of rules
2 further includes utilizing the video locator output to adjust the
3 camera setting only if the audio and video locator outputs are
4 within a specified range of one another for the given measurement
5 interval.

1 6. (Canceled).

1 7. (Original) The method of claim 1 wherein the set of rules
2 includes determining based on the audio locator output if the
3 object of interest corresponds to a new speaker in a multiple-
4 participant system, and if a new speaker is detected, directing the
5 camera to zoom out by a predetermined amount and to turn in a
6 direction of the new speaker.

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1 8. (Previously presented) The method of claim 1 wherein the set
2 of rules includes determining based on the audio locator output if
3 the object of interest corresponds to a same speaker in a multiple-
4 participant system, and if the same speaker is detected, utilizing
5 the video locator output to adjust the camera setting so as place
6 the same speaker at a designated position within one or more video
7 frames generated by the camera.

1 9. (Original) The method of claim 8 wherein the set of rules
2 further includes adjusting a zoom setting of the camera until a
3 head of the identified same speaker occupies a designated portion
4 of a given one of the one or more video frames generated by the
5 camera.

1 10. (Original) The method of claim 1 wherein the set of rules
2 specifies that the camera is zoomed out by a predetermined amount
3 after a detected period of continued silence exceeds a first amount
4 of time.

1 11. (Original) The method of claim 10 wherein the set of rules
2 further specifies that the camera is zoomed out by an additional
3 amount if the detected period of continued silence exceeds a second
4 amount of time greater than the first amount of time.

1 12. (Currently amended) An apparatus for tracking an object of
2 interest in a video processing system, the apparatus comprising:
3 a camera; and

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4 a processor coupled to the camera and operative (i) to
5 process an audio locator output from an audio input signal, and a
6 video locator output from a video input signal derived partly from
7 movement of the object, each indicative of a location of the object
8 of interest for particular ones of given measurement intervals of a
9 plurality of successive measurement intervals; and (ii) to apply a
10 set of confidence level rules to each of the audio locator output
11 and the video locator output to determine which one of the audio
12 locator output and the video locator output has a higher confidence
13 level, whereby the one having the highest confidence level will be
14 utilized independently of the other to adjust a setting of the
15 camera based on the given measurement ~~interval, interval. such that~~
16 ~~the camera setting is adjusted utilizing only the selected one of~~
17 ~~the audio locator output and the video locator output in accordance~~
18 ~~with the applied set of rules.~~

1 13. (Original) The apparatus of claim 12 wherein the object of
2 interest comprises a moving person.

1 14. (Original) The apparatus of claim 12 wherein the camera is
2 a pan-tilt-zoom (PTZ) camera having adjustable pan, tilt and zoom
3 settings.

1 15. (Original) The apparatus of claim 12 wherein the set of
2 rules includes determining if the audio locator and video locator
3 outputs are sufficiently close for the given measurement interval,
4 and utilizing only the audio locator output to adjust the camera

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5 setting if the audio and video locator outputs are not within a
6 specified range of one another for the given measurement interval.

1 16. (Original) The apparatus of claim 15 wherein the set of
2 rules further includes utilizing the video locator output to adjust
3 the camera setting only if the audio and video locator outputs are
4 within a specified range of one another for the given measurement
5 interval.

1 17. (Canceled).

1 18. (Original) The apparatus of claim 12 wherein the set of
2 rules includes determining based on the audio locator output if the
3 object of interest corresponds to a new speaker in a multiple-
4 participant system, and if a new speaker is detected, directing the
5 camera to zoom out by a predetermined amount and to turn in a
6 direction of the new speaker.

1 19. (Previously presented) The apparatus of claim 12 wherein the
2 set of rules includes determining based on the audio locator output
3 if the object of interest corresponds to a same speaker in a
4 multiple-participant system, and if the same speaker is detected,
5 utilizing the video locator output to adjust the camera setting so
6 as place the same speaker at a designated position within one or
7 more video frames generated by the camera.

1 20. (Original) The apparatus of claim 19 wherein the set of
2 rules further includes adjusting a zoom setting of the camera until

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3 a head of the identified same speaker occupies a designated portion
4 of a given one of the one or more video frames.

1 21. (Original) The apparatus of claim 12 wherein the set of
2 rules specifies that the camera is zoomed out by a predetermined
3 amount after a detected period of continued silence exceeds a first
4 amount of time.

1 22. (Original) The apparatus of claim 21 wherein the set of
2 rules further specifies that the camera is zoomed out by an
3 additional amount if the detected period of continued silence
4 exceeds a second amount of time greater than the first amount of
5 time.

1 23. (Currently amended) An article of manufacture comprising a
2 storage medium for storing one or more programs for tracking an
3 object of interest in a video processing system, wherein the one or
4 more programs when executed by a processor implement the steps of:

5 generating for particular ones of given measurement
6 intervals of a plurality of successive measurement intervals, an
7 audio locator output from an audio input, and a video locator
8 output from a video input derived partly from detection of movement
9 of the object, each indicative of a location of the object of
10 interest;

11 applying a set of confidence level rules to each of the
12 audio locator output and the video locator output to determine
13 which one of the audio locator output and the video locator output
14 has a higher confidence level, whereby the one having the highest

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15 confidence level will be utilized independently of the other to
16 adjust a setting of the camera based on the given measurement
17 interval; and
18 adjusting the camera setting utilizing only the selected
19 one of the audio locator output and the video locator output in
20 accordance with the applied set of confidence level rules.

1 24. (Previously presented) The method of claim 1 wherein the set
2 of rules further includes determining if a confidence indicator
3 associated with the video locator output is above a specified video
4 locator threshold for the given measurement interval, and utilizing
5 the video locator output to adjust the camera setting only if the
6 video locator confidence indicator is above the video locator
7 threshold for the given measurement interval.

1 25. (Previously presented) The apparatus of claim 12 wherein the
2 set of rules further includes determining if a confidence indicator
3 associated with the video locator output is above a specified video
4 locator threshold for the given measurement interval, and utilizing
5 the video locator output to adjust the camera setting only if the
6 video locator confidence indicator is above the video locator
7 threshold for the given measurement interval.